Designing and Developing a Mobile-Device-Supported Interactive-Writing Platform: The Struggle for Supporting Collaborative Writing in a Heterogeneous EFL Class

Yu-Ju Lan[a], Yao-Ting Sung [b], Kuo-En Chang [c]
[a] *Department of Mathematics and Information Education, National Taipei University of Education*
[b] *Department of Educational Psychology and Counseling, National Taiwan Normal University, Taiwan*
[c] *Department of Information and Computer Education, National Taiwan Normal University, Taiwan*
yujulan@gmail.com

Abstract: This study applied design research in designing a mobile-device-supported interactive writing platform (ePoetry Zone, ePZ) for elementary EFL learners in collaborative creation. In the first iteration essential supports needed in interactive writing were identified and became the design foundation of the mobile interactive writing platform (ePZ). In the second iteration, ePZ was developed and then 23 fourth graders participated in collaborative creation by using ePZ. Some problems found in a traditional EFL setting were solved but other new problems were identified as well. The findings of the second iteration were collected and served as the revising foundation of the current version of ePZ (ePZ II).

Keywords: Interactive writing, design research, mobile-device-supported collaborative learning

Introduction

Interactive writing is a very powerful strategy for helping children learn the early reading and writing skills which include the knowledge of letters, sounds, syllables, words and sentences. It provides rich, educative experiences for young children [1].It emphasizes children's active role in the writing process and the teacher's role changes as scaffolding providers [2]. During interactive writing the small group work together to create written texts. Based on the template and guidance provided by the teacher, the group agrees on what to write through discussion and negotiation. The pieces created by the students exhibited in front of the class and are used for reading materials.

Students' collaboration is one of the key features of interactive writing. However, it's not easy to have elementary students collaborate with their group mates effectively in Taiwanese Elementary EFL settings. Based on Lan, Sung, and Chang's study [3], students working in a small group tend to a dominated learning in which the students with higher target abilities often dominate the proceeding of "collaborative learning" and on the contrary the students with lower target abilities almost always listen to and follow the commands given by their group leaders. Nevertheless, most of the problems could be solved

effectively by using mobile technology in early English reading activities [4, 5]. Writing experts also found that a computer-rich environment could provide students with the resources (such as WWW, email, and laptop) during writing process. It gives students much more opportunities to do authentic writing, publish their creations, and share with others [6, 7].

The purpose of this research was to develop a mobile-device-supported interactive writing platform (e-Poetry Zone, ePZ) to support students' collaborative poem composition in elementary EFL settings. To achieve the object, a design research approach was applied to the design-develop-evaluate cycle to develop the collaborative writing platform for elementary learners' interactive writing. The findings of each iteration were served as a foundation of revising for a newer version of ePZ to provide elementary EFL learners with a more effective environment for interactive writing.

1. The First Iteration: Collaborative Interactive Writing in a Traditional EFL Class

This iteration focused on the requirement identification for a mobile-device-supported interactive writing platform that can enhance collaborative writing in EFL students. Twenty-two fourth graders participated in the iteration. Twenty-two fourth graders participated and were divided into heterogeneous writing groups based on their level of English achievement in the third grade. All student activities were videotaped and analyzed. The analysis was intended to understand elementary EFL learners' collaborative creation process and identify deficiencies in interactive writing in a traditional EFL setting as well as the essential supports needed in a successful collaborative interactive writing.

1.1 Method

1.1.1 Instruments and procedure

This iteration employed a program with five teaching packages which included five types of poem: Cinquain, Alphabet poetry, Couplet, Haiku, and Riddle. Each package introduced one type of poem and included two two-lesson activities which were taught over a period of 2 weeks (two lesson per week, 160 minutes for each package), hence all the packages were used for 10 weeks.

In the initial series of two-lesson interactive writing activities, the EFL teacher first showed the students three or four examples and guided them to discuss with their groupmates to identify the format of the target poem. Next the EFL teacher gave them a template to practice collaborative writing. Then each member tried to compose their own poem under the constraints given by the EFL teacher (such as least reduplication of words in a group, following the poem format, using imagination… *etc*.).

In the second series of two-lesson activities, each student first shared their works created in the first two-lesson activities with their groupmates. Then the whole group edited their works into an album via discussion and negotiation. Finally each group showed their albums to the whole class, and each student assessed other groups' albums.

1.2 Results

After the treatment finished the researcher repeatedly watched the videotapes and listened to the discourse between groupmates. The observations focused on the process of collaborative learning (discussing, sharing, writing, and negotiating) in interactive writing in elementary EFL learners and the problems that might have reduced the effectiveness of

interactive writing.

The observed results of the videotapes and the discourse revealed that some collaborative learning behaviors (such as discussing, negotiation, and sharing) existed in interactive writing activities. Unfortunately, the learning process seemed to be dominated by some students and other students had no much involving during the process.

Some essential supports needed to enhance the collaborative learning in elementary EFL learners during interactive writing were identified, such as writing tools (e.g., rhyming dictionary, audio dictionary) for text writing, exhibition area for students' creation, chat room for discussing and sharing and negotiating, resource searching engine, and editing mechanism.

2. The Second Iteration: The Development and Evaluation of Mobile-Device-Supported Interactive Writing Platform – e-Poetry Zone

Based on the findings obtained in the first iteration, the design foundation of ePZ focused on providing elementary EFL learners with essential supports to collaborate with their groupmates in interactive poem composition. The system of ePZ consists of 7 modules: What is a poem, Write your poem, Idea center, My tools, Brainstorming, Our poems, and My poem. The following is the brief function description of each module.

Module 1 -- What is a poem? The function of this module is for the downloading of teaching material (including templates, handouts, and worksheets) and learning resources.

Module 2 – Write your poem. This module provides learners with different options of manuscript paper.

Module 3 – Idea center. This module provides learners with an idea sharing space after class.

Module 4 – My tools. This module consists of three kinds of online dictionaries: rhyming picture dictionary, online dictionary, and my dictionary.

Module 5 – Brainstorming. This module includes two kinds of chat rooms: for whole class and for group.

Module 6 – Our poems. This is an online exhibition area of students' creations.

Module 7 – My poem. This module is for students to upload their group albums.

2.1 Method

2.1.1 Design

In this iteration twenty-three fourth graders (not the same subjects as in the first iteration) participated in this iteration. All the interactive writing activities were videotaped for subsequent analysis. The students were divided into heterogeneous writing groups based on their level of English achievement in the prior semester.

2.1.2 Instruments and procedure

The poems taught in this iteration were the same as in the first iteration. However, the other materials, such as worksheets and template were e-format and uploaded to the material management system. Besides, each student was equipped a Tablet PC. The procedure was similar to the first iteration: five teaching package for 10 weeks. With the supports of ePZ, students posted their idea on the class chat room to brainstorm the possible rules of a specific poem. And when involving in all of the activities, students could use the online dictionary to hear the sound of a word, to look up the meaning of a word, and to segment the word based on syllables. When they did individual practice of poem writing, they also used

the online dictionary to find the words needed in their Haiku. In addition, they used the group chat room to do intra-group discussing. After they finished their individual composition, they uploaded their poems and others could watch and read their works online. Finally students shared their poems with their group mates and discussed about how to edit their album. As soon as they finished, they submitted their album and shared them with all the guest of ePZ.

2.2 Results

Based on the field observation, we found that ePZ helped students find the right words for their poems, share their ideas, discuss with others, and publish their works. However we also found some problems caused by the rich of technology. The observed advantages and disadvantages of using ePZ in students' interactive writing are described briefly as the following.

2.2.1 Advantages

Regarding the benefit to individual creation, it was found that the "inking" technology from Microsoft® enables students to edit, file, and store of handwritten notes in their own poems. Students loved to crate pictures for their own poems via the stylus. In addition, because they were able to find the words for their poems and therefore spent less time in individual creation comparing with the students in the first iteration, they had more time to draw the pictures.

It was also found that ePZ promoted their engagement in individual creation activities. Most of the students were actively engaged in individual creation activities. Be equipped with TabletPCs with online dictionaries, they were able to create their poem with less doubt. Each student wrote down their own sentences, uploaded to their chat room, and discussed with their groupmates about their writing. Each one contributed his/her production to the final group work. Besides, during the brainstorming, they were eagerly posted their ideas on the chat rooms (both group and class).

2.2.2 Disadvantages

Some defects because of the rich technologies were identified. The most eye-catching one was "rich in convenient resources poor in mental effort." We found that students were used to look up the unknown words on the computer (online dictionaries) without careful thinking. They were used to input a Chinese word or phrase, grabbed the English translation, and copied it in their sentences. On the contrary, without the convenient resources (online dictionaries) the students of the first iteration, even not all the students, were used to discuss how to choose a word or express their meaning with others. They looked up in the dictionary, found a word, discussed with each other, chose the word or continued looking up another one. More social interactions were found when doing individual writing although it took them lots of time to finish their creation or there was not enough time for them to accomplish their task. Another finding was when students brainstormed and posted their idea via online chat rooms, they typed and pressed "Enter" seemly in a race and without careful thinking about the words or idea they had posted. Consequently, lots of unrelated or elfish words were found in the logs.

The other notable drawback was that the creation of group album was restricted to the screen size. Usually, only one student was responsible for editing the album due to the small size of screen. The others were looking or chatting when their group mate was editing. The situation was totally different from that was found in the first iteration in which each interactive writing group was given a standard-sized sheet to edit their group album. Before

editing, the students were used to discuss how to edit their individual works into their group album and assign each member's responsibility. Some sketched, some colored, and some copied the text. Although they sometime changed their mind and needed another sheet to reedit or failed in accomplishing their task, all the group members worked together to accomplish their group creation

Some phenomena about the individual function of ePZ were also noticed. One was about the module of "Idea center". By checking the logs, we found that the module was never used by the students after school because of their studying load and the imposed constraints upon internet-access given by their parents. Another problem was identified when they used the module of "Brainstorming" to discuss and share ideas during poem creation. It was found that unrelated words or phrased were interwoven with the useful ideas and their individual creation had led to an unreadable combined text and inhibited effective discussion.

3. Conclusion and the Future Work

In this study we applied design research to develop a mobile-device-supported interactive writing platform. We first observed forth graders' interactive writing and identified the problems which might inhibit collaboration in elementary EFL learners. We found that interactive writing was able to cultivate collaborative learning in an EFL setting. However, because of the lack of essential English abilities some of the students were unable to actively engage in group discussion and negotiation. Based on the identified features obtained via videotape analysis and field observation, we design and developed ePZ with the purposes to support EFL learners' interactive writing. Through the observation on another set of participants using ePZ to do interactive writing, we found that ePZ was able to promote EFL learners' engagement and personal work creation. However, some disadvantages due to the rich of technologies were also identified, such as poor mental effort and some idle modules of ePZ. The future work will focus on the schemes development for rich mental effort in rich technology support as well as module revising for easy collaboration (e.g. discussing, idea sharing, and negotiation, etc…) and work exhibition.

Acknowledgements

This research was supported by grants from the National Science Council, Republic of China, under contract nos. NSC 96-2520-S-003-012-MY3 and NSC 97-2631-S-003-002.

References

[1] Button, K., Johnson, M. J., and Furgerson, P. (1996) Interactive writing in a primary classroom. *The Reading Teacher, 49*(6), 446-454.

[2] Button, K. A. (1992). A longitudinal case study examination of the theoretical and practical changes made by three urban kindergarten teachers during participation in early literacy training. Unpublished doctoral dissertation, The Ohio State University, Columbus.

[3] Lan, Y. J., Sung, Y. T., & Chang, K. E. (2007). A mobile-devices-supported peer-assisted learning system for increasing the effectiveness of collaborative early EFL reading. *Language Learning and Technology*, 11(3), 130-151.

[4] Lan, Y. J., Sung, Y. T., & Chang, K. E. (2006) What makes collaborative early EFL reading effective? A mobile dynamic peer-assisted learning system. *Proceedings of IADIS International Conference Mobile Learning 2006*, 185-192.

[5] Lan, Y. J., Sung, Y. T., & Chang, K. E. (2007) Let's read together: An evaluation of a computer assisted reciprocal early English reading system. *Proceeding of the Computer Supported Collaborative Learning (CSCL) Conference 2007, 8* (1), 405-407.

[6] Kulik, J. A. (2003) Computer use helps students to develop better writing skills. Retrieved November 30, 2006 from http://www.sri.com/policy/csted/reports/sandt/it.

[7] National Science Foundation, Division of Science Resource Studies. (2000) *Implications of Information Technologies.* Retrieved November 28, 2006 from http://srsweb.nsf.gov/it_site/it/infotech.htm.